

# SEMESTER EXAMINATION DECEMBER-2024

Course Name: - B.Tech (CSE)

Semester:-Vth

Paper Name: - Computer Graphics

Paper Code: - TCS-504

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer.

Max Marks-70

समय-3 घण्टे+ 20 मिनट प्रति घंटे अतिरिक्त-दृष्टिबाधित एवं सहलेखक परीक्षार्थियों के लिए।

अधिकतम अंक-70

## Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries 3 mark. All questions are compulsory.
- Section B- Answer any 5 out of 7 given questions. Each question carries 7 marks.
- Section C- Answer any 2 out of 3 given questions. Each question carries 10 marks.
- Section D- Each question carries 2 mark. All questions are compulsory.

## निर्देश:

- प्रश्नपत्र में तीन खण्ड अ, ब, व स हैं। सभी खण्ड अनिवार्य हैं।
- खण्ड-अ में प्रत्येक प्रश्न तीन अंक का है। सभी प्रश्न अनिवार्य हैं।
- खण्ड-ब में सात प्रश्नों में से किन्हीं पाँच प्रश्नों के उत्तर दें। प्रत्येक प्रश्न सात अंक का है।
- खण्ड-स में तीन प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर दें। प्रत्येक प्रश्न 10 अंक का है।
- खण्ड-द में प्रत्येक प्रश्न दो अंक का है। सभी प्रश्न अनिवार्य हैं।

## Section - A (खण्ड-अ)

### Objective Questions (वस्तुनिष्ठ प्रश्न)

1. Answer all the following questions.

5x3 =15

निम्नलिखित सभी प्रश्न अनिवार्य हैं।

- According to the Cohen-Sutherland algorithm where does the line lie if the 4-bit code for both endpoints is 0000 and their logical OR also result in 0000?
  - Half outside half inside
  - Completely inside
  - Completely outside
  - NDT
- How many phosphors colour dots are present at each pixel position in a shadow mask CRT?
  - 1
  - 3
  - 5
  - 2
- Raster system display a picture from a definition in a?
  - Display file program
  - frame buffer
  - display controller
  - NDT
- Which of the following is true with respect to the Bradenham's line drawing algo?
  - It overcome the drawbacks of DDA line drawing algo
  - The DDA algo was proposed to overcome the limitations of bresenham's line draw algorithm?
  - Both a & b
  - NDT
- Which of the following plane is used for 2D transformations?
  - Three-dimensional plane
  - Two-dimensional plane



- c) One-dimensional plane
- d) Four-dimensional Plane

### Section - B (खण्ड-ब)

#### Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any five of the following questions in maximum 150 words.  
निम्नलिखितमें से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें।

5x7=35

- i. Define Computer Graphics? Explain basic terminology of computer Graphics?
- ii. Describe DDA Line draw algorithms?
- iii. What is Raster Scan display? Explain with neat diagram?
- iv. Define projection? Explain types of projection?
- v. Define Shading? Explain CGS Modelling?
- vi. Define transformation? Explain types of transformation?
- vii. Explain Cohen Sutherland Line clipping algorithm?

### Section - C (खण्ड-स)

#### Descriptive Questions (विवरणात्मक प्रश्न)

3. Answer any two of the following question in maximum 300 words.  
निम्नलिखितमें से किन्हीं दो प्रश्नों के उत्तर अधिकतम 300 शब्दों में दें।

2x10=20

- i) Draw Circle & line plotting Using Bresenham's algorithm?
- ii) Draw a line with two end point (20,10) and (31,19) using bersenham's algorithms? Explain PHIGS?
- iii) Write short notes on the following:
  - ( i ) Midpoint subdivision algorithm
  - ( ii ) 3D Transformation
  - ( iii ) Illumination model
  - ( iv ) GKS

### Section - D

#### Mid-Test

Course Name: - B.Tech. (CSE)

Paper Name: - Computer Graphics

Semester: - V<sup>th</sup>

Paper Code: - TCS-504

### Section - D

#### Objective Questions:

Max. Marks:20

Note: Answer all the following questions.

10x2 = 20

1. Cohen-Sutherland clipping is an example of \_\_\_\_\_.
  - a) polygon clipping
  - b) text clipping
  - c) line clipping .
  - d) curve clipping
2. The Cohen-Sutherland algorithm divides the region into \_\_\_\_ number of spaces.
  - a) 8
  - b) 6
  - c) 7
  - d) 9 .
3. On raster system, lines are plotted with
  - a) Lines
  - b) Dots
  - c) Pixels
  - d) None of the mentioned

3. Which of the following is true with respect to the Bresenham's line drawing algorithm?
  - a) It overcomes the drawbacks of DDA line drawing algorithm
  - b) The DDA algorithm was proposed to overcome the limitations of Bresenham's line drawing algorithm
  - c) Both a. and b.
  - d) None of the above
  
4. Why is the complexity of Bresenham's line drawing algorithm less than that of DDA line drawing algorithm?
  - a) It uses floating point operations over Integer addition and subtraction
  - b) It considers only selected ranged inputs
  - c) It uses integer addition and subtraction over floating point operations
  - d) None of the above
  
5. Which of the following properties is followed by the Bresenham's algorithm?
  - a) It is an incremental method
  - b) It chooses points randomly
  - c) It uses floating point operations
  - d) All of the above
  
6. The translation distances (dx, dy) is called as
  - a) Translation vector
  - b) Shift vector
  - c) Both a and b
  - d) Neither a nor b
  
7. The basic geometric transformations are
  - a) Translation
  - b) Rotation
  - c) Scaling
  - d) All of the mentioned
  
- 8) What does composite transformations means?
  - a) Transformations that can be done in sequence
  - b) Transformations that cannot be done in sequence
  - c) Transformations that can be done simultaneously
  - d) Transformations that cannot be done simultaneously
  
- 9) Which of the following statements define Computer Graphics?
  - a) It refers to designing plans
  - b) It means designing computers
  - c) It refers to designing images
  - d) None of the mentioned
  
- 10) Which of the following is the purpose for using clipping in computer graphics?
  - a) copying
  - b) zooming
  - c) adding graphics
  - d) removing objects and lines